

CLAIMS

What is claimed is:

1. Signal processing apparatus comprising:
circuitry for digitizing an input signal;
a software linearizer for processing the digitized signal to produce a pre-distorted RF signal that is to be subsequently amplified to produce a signal that has
5 reduced intermodulation distortion;
circuitry for converting the pre-distorted RF signal to an analog signal; and
a nonlinear amplifier for amplifying the pre-distorted analog signal to produce an output signal corresponding to the input signal that has reduced intermodulation distortion.
2. The apparatus recited in Claim 1 further comprising:
an upconverter for upconverting the pre-distorted analog signal;
a linear amplifier for amplifying the pre-distorted signal;
a bandpass filter for filtering the pre-distorted signal; and
5 a transmit antenna for transmitting the filtered pre-distorted signal
3. The apparatus recited in Claim 1 further comprising:
a receive antenna for receiving the pre-distorted signal;
a low noise amplifier for amplifying the received pre-distorted signal;
a downconverter for downconverting the pre-distorted signal; and
5 a channel amplifier for amplifying the pre-distorted signal and coupling it to the nonlinear amplifier.
4. The apparatus recited in Claim 1 further comprising:
an upconverter for upconverting the pre-distorted analog signal and coupling it to the nonlinear amplifier;
a bandpass filter for filtering the output signal having reduced intermodulation
5 distortion; and
a transmit antenna for transmitting the filtered output signal having reduced intermodulation distortion.

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6. The method recited in Claim 5 wherein the processing step comprises processing the digitized signal using a pre-amplification software linearizer to produce the pre-distorted RF signal.